



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,479	09/27/2004	Lloyd Ballard Mauldin		2478

30801 7590 02/06/2006

CHEMICAL PRODUCTS CORPORATION  
P.O. BOX 2470  
102 OLD MILL ROAD S.E.  
CARTERSVILLE, GA 30120-1692

EXAMINER

BOYKIN, TERRESSA M

ART UNIT PAPER NUMBER

1711

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

W

<b>Office Action Summary</b>	<b>Application No.</b> 10/708,479	<b>Applicant(s)</b> MAULDIN ET AL.	
	<b>Examiner</b> Terressa M. Boykin	<b>Art Unit</b> 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/04; 5/05</u> <u>9/04</u> | 6) <input type="checkbox"/> Other: _____  |

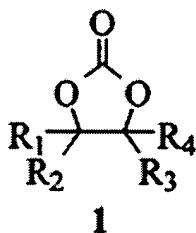
### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1- 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over John H. Clements see abstract, claims.**

**John H. Clements** discloses five-membered alkylene carbonates (1,3-dioxolan-2-ones) of the general structure



Note the (Table 1)

**Table 1. Properties of Ethylene and Propylene**

**Carbonate**

property EC PC

boiling point (°C) 248 242

freezing/melting point (°C) 36.4 -49

flash point (°C) 160 135

viscosity (cP, 25°C) 2.56<sup>a</sup> 2.50

% VOC<sup>b</sup> (110 °C) 34 28

<sup>a</sup> Supercooled liquid. <sup>b</sup> Volatile organic content.

**Figure 1.** Synthesis of five-membered alkylene carbonates via insertion of CO<sub>2</sub> into oxiranes. R ) H, CH<sub>3</sub>, or C<sub>2</sub>H<sub>5</sub>.

The physical properties of Table 1 demonstrate why EC and PC are attractive solvent

Art Unit: 1711

substitutes. In addition to their biodegradability and high solvency, they have high boiling and flash points, low odor levels and evaporation rates,<sup>5</sup> and low toxicities.

The reference notes that, in addition to prepolymer synthesis, the above solvents also finds use in *polymer modification*. The reference discloses specifically that EC has been reacted with poly(ethylene terephthalate) (PET) polyesters in an effort to reduce the acid number of the material.

Thus, it is already known that cyclic ester solvents such as cyclic alkylene carbonates may be used as solvents for PET in general. Table 1 demonstrates the stability and temperatures at which the solvent may be employed.

Thus, the reference discloses the decomposition of PET except for the specific use as dissolving "waste" PET which is often in the form of face fibers. Nevertheless, the stable characteristics of the solvent and its favorable interaction with PET would lead one skilled in the art to choose it as a solvent for the separation of the PET fibers.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ as the separating solvent for the decomposition of polyethylene terephthalate from commingled waste would have been obvious since Clements discusses in detail the favorable interactions and stability of the EC as a solvent therewith. It is noted that the temperature range of about 215 would have been within the temperature stability for the solvent as noted in Table 1.

The further process step of removing impurities via sedimentation, flocculation, filtration, or centrifugation is exhaustively known in the art and of no patentable consequence.

Art Unit: 1711

Consequently, the claimed invention cannot be deemed as unobvious and accordingly is unpatentable.

### **Correspondence**

Please note that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the Office of Public Records and from commercial sources. Applicants may be referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is ( **571-272-1700**).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 1711

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb

  
Examiner Terressa Boykin

TERRESSA M. BOYKIN  
PRIMARY EXAMINER